APICAL INDUSTRIES, INC. DBA DART AEROSPACE

MANUFACTURE PROCESS PROCEDURE

FOR

PRODUCT IDENTIFICATION

Document No: MPP-120, Rev. G

LOG OF REVISIONS

Rev.	Date	Pages	Description	Reason Change (Internal Use Only)	Approval
N/C-F	Various	All	Previously Approved Releases		Committee
G	2021-OCT-8	7 8 9 10	Updated Section 2.1 and 2.1.1 Added Section 2.1.5 and 2.1.6, Added Figure 1 Updated Section 2.2 Updated Section 3.1	DC	J. Gardiner

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SAFETY SUMMARY

GENERAL PRECAUTIONS

Personal Protective Equipment (PPE) shall be worn when exposed to flying particles, liquid chemicals, or other potential hazards to the skin, eyes, ears, or respiratory system.

Ensure that the work area is free from dirt and foreign matter and that the valve is protected from environmental hazards and contaminants that could otherwise damage its function.

Failure to comply with or deviate from the procedure may negatively affect the equipment. It is the operator's responsibility to comply with these procedures.

DEFINITIONS

WARNING: **THIS INDICATES INFORMATION THAT, IF NOT FOLLOWED, COULD RESULT IN PERSONAL INJURY, DEATH, OR LONG-TERM HEALTH CONDITIONS.**

CAUTION: THIS INDICATES INFORMATION THAT, IF NOT FOLLOWED, MAY RESULT IN DAMAGE TO OR DESTRUCTION OF EQUIPMENT, OR THE LOSS OF MISSION EFFECTIVENESS.

NOTE: This indicates information that aids in understanding or provides additional detail on the methods of a procedure.

REFERENCE DOCUMENTS

A. SAE Aerospace Standard AS9100 Quality Management Systems Requirements for Aviation, Space, and Defense Organizations

B. MIL-I-6903…….....Ink, Marking (For Parachutes and Other Textile Items)

C. 14CFR K21.303….Parts Manufacturer Approval

D. 14CFR45……Identification and Registration Marking

E. 14CFR45 B…….Identification of Aircraft and Related Products

F. 14CFR45.14…….Identification of Critical Components

G. 14CFR45.15……Replacement and Modification Parts

H. 14CFR45.15…….Marking requirements for PMA article, TSO articles, and Critical Parts Replacement

I. ACNO: 43-213……Parts Marking Identification Date: 11/3/09

J. MPP-173……..Label Materials

K. QMSP 002……..Documented Information

1.0 INTRODUCTION

1.1 Purpose and Scope

This instruction defines the process required for FAA identification/marking of products and components manufactured by Dart Aerospace San Diego. Personnel responsible for utilizing this procedure are Engineering, Planning, Production, Repair, and Quality Assurance.

1.2 General Marking Requirements

Applicable parts shall be identified in accordance with 14CFR § 45, 45.13, 45.15, 21.303, (a), (b) and applicable engineering drawings requirements. The marking and/or nomenclature will be permanent in accordance with applicable regulatory requirements. When practical, the location of the part number shall permit its being read after assembly in the completed unit. Markings (FAA/PMA, part numbers, serial numbers, revision level, Organization Logo, etc.) shall be located as close together as possible.

NOTE: When there is insufficient room for marking, the components surface integrity must be maintained or are too small to be marked, a tag/nomenclature shall be affixed to the part or its container.

1.3 Definitions

FAA	Federal Aviation Administration
PMA	Parts Manufacturer Approval
CFR	Code of Federal Regulations
QA	Quality Assurance
QC	Quality Control
QMS	Quality Management System
DAV	Dart Aerospace Vista
P/N	Part Number
Rev.	Revision
A/C	Aircraft Model
S/N	Serial Number
MO	Manufacturing Order
TC	Type Certificate
STC	Supplemental Type Certificate

2.0 REQUIRED INFORMATION

Unless otherwise noted on the applicable approved drawing, the following sections detail the minimum information to be marked on parts produced by Dart Aerospace.

2.1 PMA Identification

Parts Manufacturer Approval (PMA) items are items that Dart Aerospace owns the design for and must be marked with the following minimum information when there is enough area to allow the marking:

NOTE: This data is ONLY required to be on highest level assemblies that can be shipped or sold separately. Any part that cannot be sold or shipped individually as part of a PMA kit do not need to be marked IAW this section. See Section 2.3 for general part marking.

A. FAA-PMA
B. Apical Industries Inc. dba Dart Aerospace
C. Part Number
D. Left Hand/Right Hand (“LH”/”RH”)—where applicable
E. Revision
F. Serial Number
G. DOM (two digits to represent month, four digits to represent year)

2.1.1 Lower Tier Subassemblies of FAA-PMA Parts/Assemblies

Parts and lower tier subassemblies that are always incorporated into FAA-PMA assemblies and not sold as individual components to an end user shall be marked with the following minimum information when there is enough area to allow for marking:

A. Part Number
B. Left Hand/Right Hand (“LH”/”RH”)—where applicable
C. Revision
D. Serial Number/Container Number
E. DOM (two digits to represent month, four digits to represent year)

2.1.2 Marking of Critical Parts

Any part which has a replacement time, inspection interval, or related procedure as specified in the Airworthiness Limitations section of a manufacturer's maintenance manual or Instructions for Continued Airworthiness must be permanently and legibly marked with a serial number unique to that part in addition to the other applicable requirements of this section.

2.1.3 Inflatable Panels

Inflatable Panels shall be marked using the cutting table's marking function.

2.1.4 Accessories

Accessories include any article not produced on the cutting table. These components may be stamped. For example, lanyards, patches, and carabiners.

2.1.5 Sewing Sub-Assemblies

Sewing Sub-assemblies shall be marked by hand onto the surface when required. Markings and nomenclature should be completed in a legible manner with permanent marker or equivalent device.

2.1.6 Float Assemblies Mounted on Skid Tubes

Float assemblies mounted on skid tubes shall be marked with yellow ink on the girt area in a legible manner with the following:

A. FAA-PMA
B. Part Number
C. Revision
D. Left Hand/Right Hand ("LH"/"RH")—where applicable
E. Serial Number
F. DOM (two digits to represent month, four digits to represent year)

Figure 1: Marking of floats mounted on skid tubes

2.2 Marking and Nomenclature—Contractual Agreements

When required by contract for drawings and/or critical parts, the following information shall be marked on the product(s) unless otherwise specified on drawing:

A. Apical Industries Inc. dba Dart Aerospace
B. Part Number
C. Revision
D. Left Hand/Right Hand (“LH”/”RH”—where applicable)
E. Model A/C eligibility
F. Serial Number
G. Additional customer contractual marking and nomenclature requirements
H. Company Logo

NOTE: The products and assemblies that most frequently require the above marking and nomenclature are, but not limited to float kits, cables, hoses, valves, slides, and reservoirs.

2.3 Marking and Nomenclature—General

If parts do not fall under the conditions of Section 2.1 or 2.2, the following information shall be marked on the product(s):

A. Part Number
B. Revision
C. Serial Number (if applicable)
D. Left Hand/Right Hand (“LH”/”RH”—where applicable)

NOTE: Parts may not be marked with temporary tags that could fall off the parts and create Foreign Object Debris (FOD).

3.0 RESPONSIBILITIES

3.1 Engineering

Engineering is responsible for indicating on drawings, where to mark higher assemblies IAW Section 2.1 or 2.2 depending on who owns the design. Permanently affixed subcomponents may be marked IAW Section 2.1.1. or Section 2.1.5.

3.2 Planning

Planning is responsible for indicating on the Manufacturing Order / Work Order to mark highest level assemblies IAW Section 2.1 and 2.2.

NOTE: Some new products may be owned by a customer and are only marked IAW Section 2.2. If subcomponents have a Dart's STC, then those subcomponents may be marked FAA-PMA.

3.3 Production

Production is responsible for reading and complying with the Manufacturing and Repairs order/Work Order and drawings. All permanently affixed subcomponents (such as accessories and panels) shall be marked IAW Section 2.1.

4.0 METHODS AND MATERIALS

The marking of parts shall be accomplished in a manner that will not adversely affect the life or utility of the part. Where identification information is unknown at the time of fabrication, space shall be left for subsequent placement of unknown information.

4.1 Materials

4.1.1 Reservoir Label Template

Reservoir assemblies will use the template and be labeled per drawing 601.3660 unless another label is specified by the respective design. The required fields shall be completed on the template with the applicable part and serial number.

4.1.2 Ink Media

The following table identifies the ink color, product, fabric color, application media and media specification to be used:

Table 1: Ink Application

INK COLOR	PRODUCTS	FABRIC COLOR	APPLICATION METHOD	MEDIA SPECIFICATIONS
BLACK **RED**	Floats Float Covers	Yellow White Silver Grey	Stencil	MIL-I-6903 Diagraph GS-2 Parachute Ink
WHITE **RED** **YELLOW**	Floats Float Covers	Black Silver Grey	Stencil	
RED **BLACK**	Evacuation Slides	Silver Yellow Grey	Stencil	
BLACK **RED** **YELLOW** **WHITE**	Processed Component Parts	Component Body	Stencil or Stamp	
BLACK **RED**	Documents, Floats and Slides	White, Silver, Yellow	Pen or Stamp	MIL-I-6903 Diagraph GS-2 Parachute Ink Sharpie Ultra-Fine Point
BLACK **WHITE** **RED** **BLUE** **YELLOW**	Purchased Components	Component or Assembly Surface	Pen, Engrave, or Stamp *Note engraving will be either black (ceramic coat), or base color of metal	

4.2 Rubber Stamp

Rubber stamp marking is to be permanent to protect against obliteration or flaking. Illegibility or smearing is to not acceptable. If this does occur the stamping shall be reworked to be legible, concise, and orderly in appearance. Rubber stamp application will be accomplished with one of the following media:

1) Lacquer
2) Enamel
3) Epoxy

NOTE: Epoxy inks are the preferred media for most applications due to permanence; however, other conditions may dictate lacquer or enamel.

4.3 Hand Marking

Required information may be applied by hand onto the component's or assembly's surface when required. Markings and nomenclature should be completed in a legible, orderly fashion with a permanent marker and/or device.

4.4 Laser Engraving

Parts may be laser engraved when specified by the corresponding part drawing. Laser engraving is reserved for parts with minimal to no surface finish specifically excluding paint or powder coat finished parts. Bare aluminum or stainless-steel components are ideal for laser engraving. The depth of markings shall not exceed 5 percent of the thickness of the part or .005 inch, whichever is less. Markings will be uniform in stroke width with sharply defined edges and, except where the fabrication technique precludes, should have square corners at stroke ends. Markings must be uniformly clear and without distortion, nomenclature and characters shall be upper case. Marking by laser engraving should be done on a flat and properly prepared surface. When marking stainless steel on a C02 laser a ceramic coating must be used prior to engraving to ensure proper marking. The fiber laser does not require ceramic coating as it can mark stainless via ablation.

4.5 Vibrating Stylus and Carbon Tip Pencil Marking

The depth of markings shall not exceed 5 percent of the thickness of the part or .005 inch, whichever is less. Markings shall be applied prior to the application of protective finishes. Markings will be uniform in stroke width with sharply defined edges and, except where the fabrication technique precludes, should have square corners at stroke ends. Markings must be uniformly clear and without distortion, nomenclature and characters shall be upper case. Use of a vibrating stylus and/or carbon Tip Pencil is specifically prohibited on sheet metal and aluminum extrusions.

4.6 Attached Nameplates and Self-Adhesive Tags

When suitable surface space is available and/or engineering drawings dictate, a nameplate or self-adhesive tag may be attached. The nameplates or tags must be manufactured with permanent ink (Reference Table 1) or paint and be securely attached to the assembly (see MPP-173).

4.7 Inspection

Nomenclature, characters, and markings shall be inspected by the applicable drawing, work order, traveler manufacturing order, and or customer's requirement(s).

4.8 Inspection Tags

4.8.1 Primary Inspection Tag Method

Labels shall be created and printed from the ERP system to indicate current status, i.e. accepted, WIP, suspect, nonconforming (rejected), quarantined, ready for rework, or MRB. The label defines the state of the part and identifies the operation and work center.

4.8.2 Secondary Inspection Tag Method

Dart San Diego may use inspection tags to indicate the status of components when paperwork or other labelling is not yet generated. The inspection tags include three states (Accepted, Repairable or Rework, and Rejected).

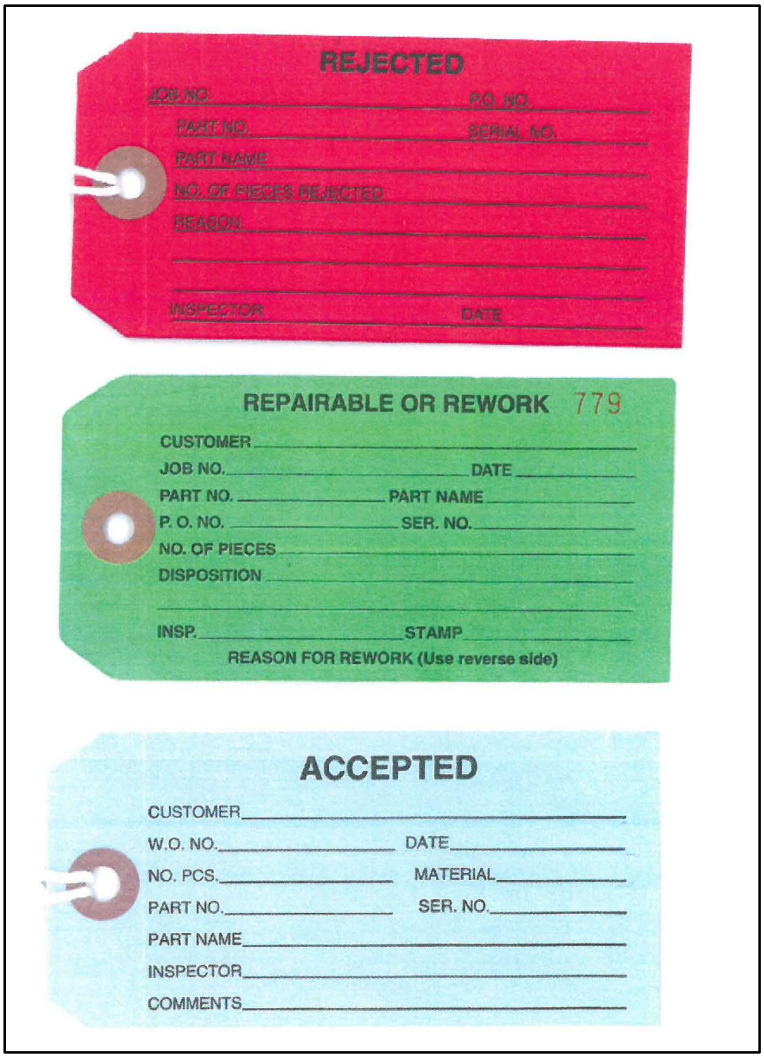

Figure 2: Examples

4.9 Accepted Tags

When product(s) pass QA inspection, the product is relocated to the material staging areas in production or placed in a storage area. When the storage or staging areas are not sufficiently segregated to prevent intermingling of product with different inspection status, the products may be labeled with an Accepted Tag.

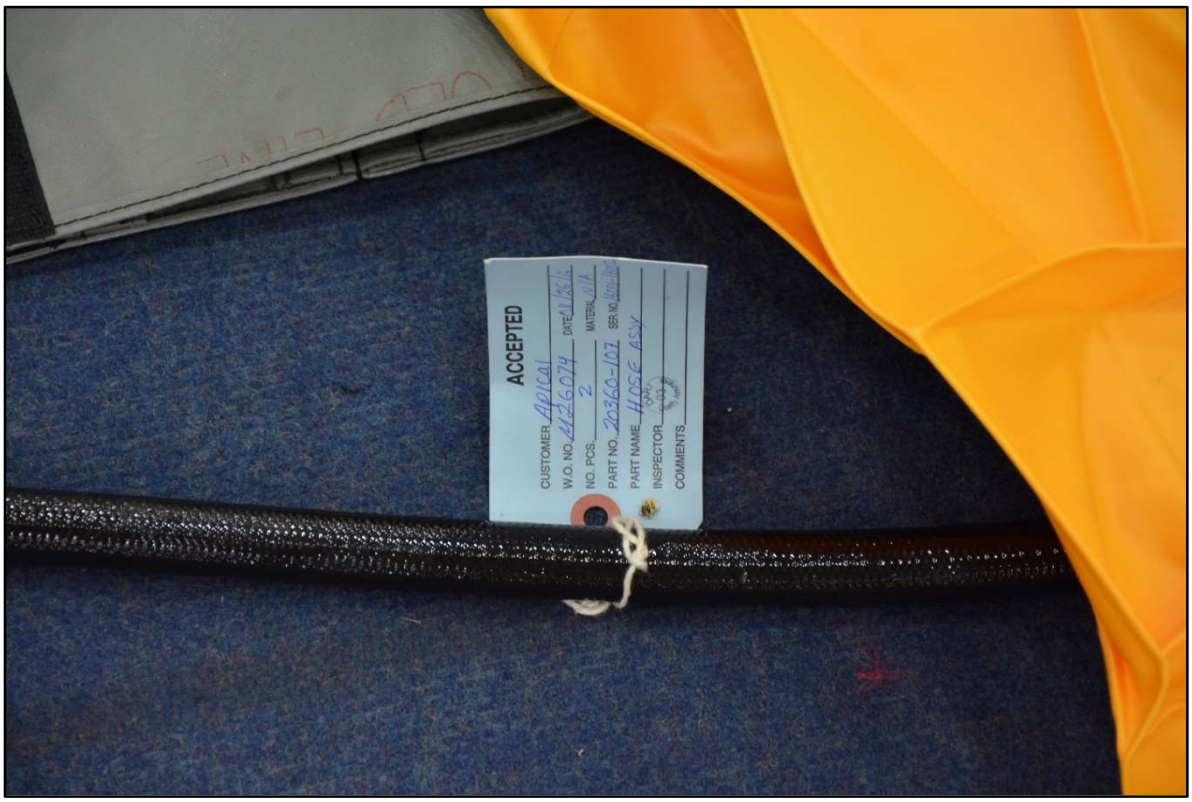

Figure 3: Accepted Example

4.10 Reject Tags

When product(s) fail inspection, the product is labeled with a Nonconformance Report Form, AIPF-8.3NCR and may have a Reject Tag attached.

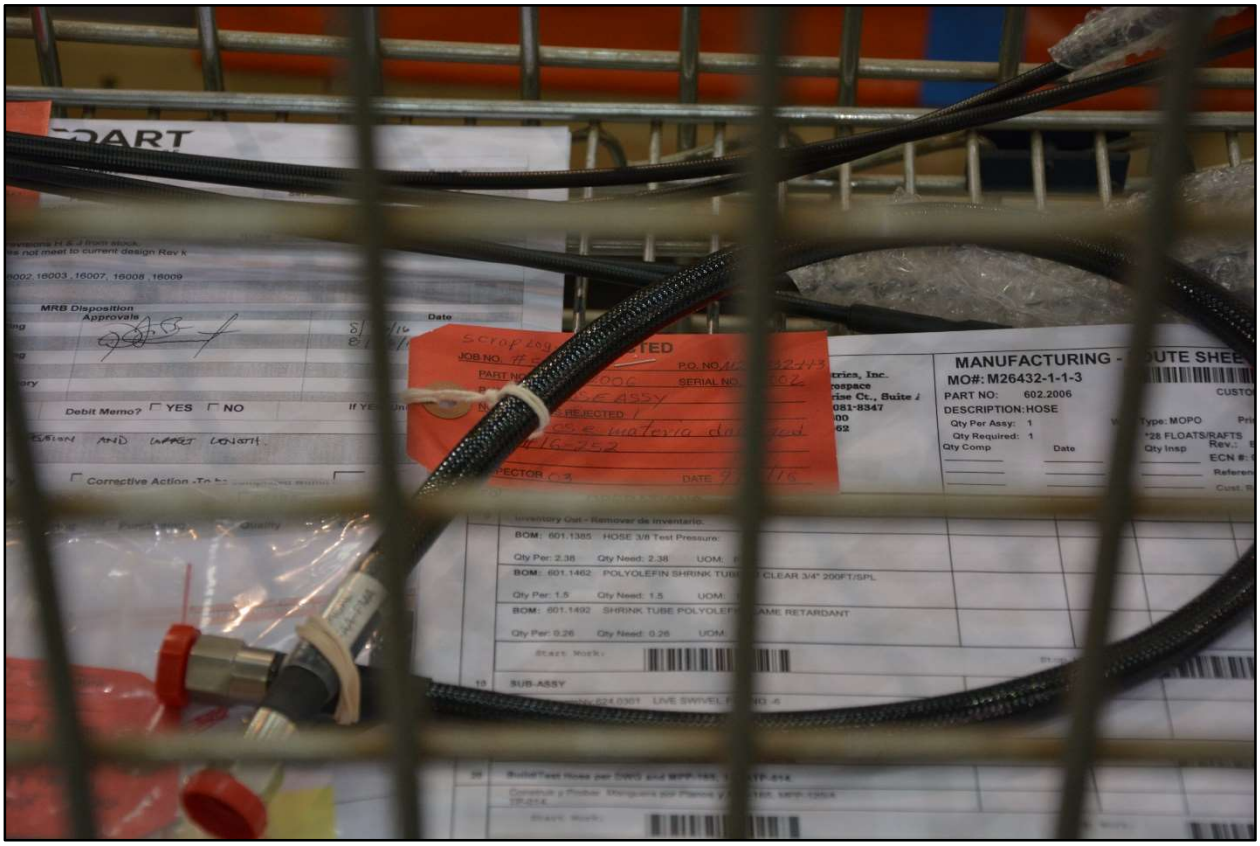

Figure 4: Rejected Example

4.11 Repairable or Rework Tags

For products in the repair station awaiting paperwork, a Repairable Tag may be attached to identify the product. Products in production that require rework may also have a Rework Tag attached for added visibility.

Figure 5: Repairable or Rework Example

5.0 SERIALIZATION

5.1 Applicability

This section defines the serialization requirements for components, assemblies, or kits. Components, assemblies, and kits shall be individually identified by individual numbers when defined by the Engineering Drawing or dictated by customer requirements. No two (2) items of the same part number are to have the same serial number.

5.2 Primary Format

For standard procedure the ERP system shall automatically generate a container number, which shall also serve as the serial number for products, unless otherwise specified by customer requirements.

VT123456

5.2.1 Alternate Format (By Customer Request)

Per Section 5.2, container number shall be generated by the ERP system. A serial number shall be manually created and identified within the ERP system, with a clear link to the original container number.

Serial number convention shall consist of Part Number (XXX.XXXX), and five (5) digits. The Part Number is included in the serial number and the following five digits represent the product's sequential place/identification within the products production stream as shown in the following example:

S/N 651.1501-00001, 651.1501-00002, etc.

5.3 Records

Serial number assignments are generated and recorded electronically by the Planning Department and maintained per QMSP 002.

5.4 Relation of Serial Numbers

A. Conversions of parts and assemblies: as necessary, when parts and assemblies are converted or reworked/rebuilt from an existing part number to another part number, the serial number may be changed. The serial number change shall be tracked in the ERP system to maintain traceability. The new serial number may follow the primary or alternate format as listed above.

B. As necessary, parts which have been produced under multiple manufacturing processes or received from multiple different vendor shall be given a 2-letter designation following the serial number to designate the process or vendor. The Purchase Order for the part in question should be considered the reference for choosing the designation. Parts which require this designation shall list and explain the possible options in the notes section of the respective DART drawing. An example is given below of the 15th part in a series produced in 2020 using a

Vacuum Bag process (note that the abbreviation “VB” for the vacuum bag process must be listed in the notes of the drawing of the example part as an option in this case):

EXAMPLE: S/N 651.1501-00015-VB

5.5 Damaged or Missing Nameplates and Self-Adhesive Tags

When replacing nameplates/tags due to damage or peeling or relocation of the nameplate/tag, the serial number on the old nameplate/tag is to be repeated/transferred onto the new nameplate/tag. At the time of installation of the new nameplate/tag, the old nameplate/tag shall be destroyed.

5.6 Inspection

An inspection of the serial number shall be performed to verify against the ERP system that the proper serial number has been assigned when transferring to a new label is required if the original label/part marking is damaged. A hard copy of the serial number will be maintained on the repair order’s work instruction.

APPENDIX A – LABEL MAKING

These steps shall be followed each time a label is made for an article at Dart Aerospace.

A. Look at the drawing requirements for the following:
   1) Material
   2) Ink or Text Color
   3) Revision
   4) Dimensions

B. Go to the label directory to find the appropriate label as indicated by the drawing or the job.
   1) Folder is “N:\Approved Label Files”
   2) Locate printer “Graphics Label Pro”, put settings for darkness to 10 and print the first label.
   3) Verify information and dimensions per the drawing.
   4) If printing a batch, continue printing.

C. If printing a single label, trim the excess from the label.